

# Knowing the Characteristics of the Community Watershed



WATERSHED MANAGEMENT

Notes 3

Environmental Management



*Determining watershed characteristics helps local government assess the current state of watershed resources and provides information on issues faced by local government and other watershed stakeholders.*

## Taking Account of Resources and Opportunities

Protection of the community watershed is important to maintain the quantity and quality of water supply, prevent floods, reduce sedimentation of coastlines, and minimize other water related concerns. Watershed areas are however vulnerable to the effects of indiscriminate logging, unsustainable upland farming practices, inappropriate mining, and real estate development. Recurring flashfloods, drought, and forest fires resulting from such activities are alarming indications that local government units (LGUs) should no longer hesitate to ensure the sustainable management of their watershed areas.

Local governments are interested to know how to optimize the use of their limited resources to manage their watershed well. One way to do this is to focus their resources on selected priority problems or opportunities unique to the watershed. To identify what these problems and opportunities are, LGUs need to know the unique characteristics of their watershed. Such characteristics include the land tenure situation, major biological and physical resources, climatic patterns, farming practices, and socio-economic activities. Generating information on watershed characteristics follows once the physical boundaries of the watershed are delineated.

Several local governments which invest in knowing the characteristics of watershed areas are benefiting from this practice. They are able to develop more realistic plans, zero in on interventions that can make a difference, and optimize the use of limited budgetary resources to achieve their watershed management objectives.

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# Technology

## Characterizing Your Watershed

If your LGU has completed the process of watershed delineation—read [Local Governance Technical Notes on Watershed Management \(LGTN-WSM\) Notes 2-1999 on Delineating the Boundaries of the Watershed Important to the Community](#) for more information—then it can launch watershed characterization activities to determine the features of the watershed. The multi-sectoral team organized for watershed delineation can be tasked also to characterize the watershed, a process that takes two to five months to complete, perhaps a total of 60–100 person-days for the entire team.

Ask the multi-sectoral team to do the following steps:

1. Classify the watershed into different ecological zones or “ecozones,” and identify LGUs inside the watershed’s boundaries. Read [LGTN-WSM 2-1999](#).
2. Review all maps that describe the watershed features. Find out what maps still have to be acquired. Bring all maps to the watershed site, and check if there are gaps that indicate information needs to be updated.
3. Analyze the legal status of the watershed with the help of DENR land classification and control maps. Identify which portions of the watershed are private property, public forestlands,

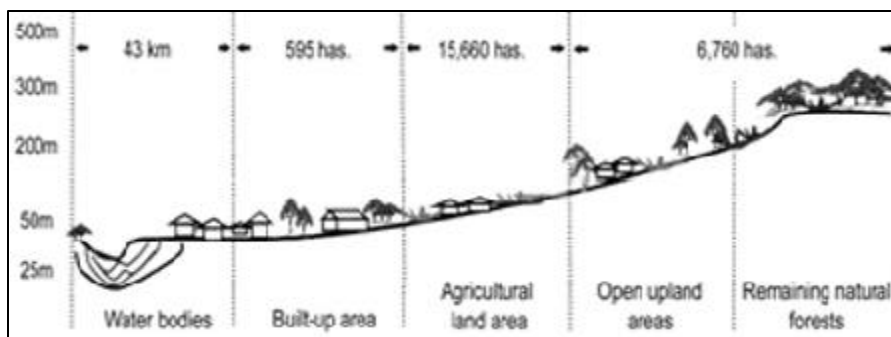


Figure 1. A portion of an Illustrative Watershed Transect or cross-section showing different ecozones of the Dumarao watershed in Capiz.

under protected status, or covered by specific proclamations. The legal status of the watershed determines the motivation of individuals or interest groups investing in the watershed.

4. Identify all the major stakeholders within each identified ecozone, e.g., government organizations, community organizations, indigenous people, forest user groups, business entrepreneurs, etc.

5. Identify all the major biological and physical resources through on-site observations and secondary data.

- Assess the watershed forest cover. Vegetation mapping and sampling indicates whether sufficient forest cover remains in areas where they count the most such as in steep slopes.

- Determine whether water sources are drying up, flooding events are increas-

ing, or fishery resources are declining.

- Assess and determine the kind of available soil resources that upland farmers cultivate.

- Determine how climatic patterns influence decisions on land use in the watershed.

6. Determine the future trends for the watershed. Picture how the watershed will look after a certain period of time. A trend scenario can be established using tools that the watershed team is trained to use.

7. Organize the watershed characterization results so that decision-makers can easily understand it. Make a transect map (or cross section) of the various ecozones, i.e., coastal, water bodies, built-up/urban, agricultural, open upland, and remaining natural forests. The transect should show the watershed general cross-section starting from the lowest to the highest elevation in each of the key ecological zones (Figure 1). It should also show current information on land classification, actual land use, corresponding constraints, and management opportunities. Make a drainage (river) map by tracing the network of tributary streams leading to the main river on a sheet of tracing paper. Enlarge the drainage map and mark the different identified ecozones. Make an Issues Map by showing on the drainage map the identified issues and problems within each ecozone (Figure 2).

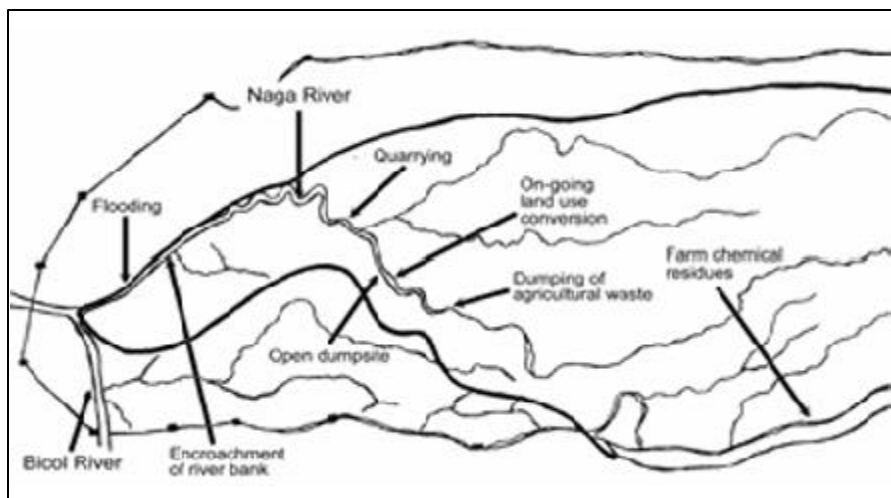


Figure 2: Issues Map of the Naga River Watershed.



## Policy and Practice

### Enabling Framework

The Forestry Reform Code considers watershed areas as special natural systems that need to be handled carefully. To underscore this, the Department of Environment and Natural Resources (DENR) has promulgated regulations focusing on watershed areas. DENR Administrative Order (DAO) 99-01 mandates the adoption of the watershed as a basic planning unit. DAO 97-02 requires watershed characterization to be undertaken before a watershed management plan is formulated.

Republic Act No. 7160, the Local Government Code, mandates local governments to take charge of their environment, in general, and their wa-

tershed, in particular. The Agriculture and Fisheries Modernization Act (AFMA) requires that agricultural planning and development ensure that watershed systems are protected. The Joint Memorandum Circular 98-01 between the DENR, Department of Interior and Local Government (DILG), and the concerned local government enables LGUs to manage timberlands marked out as community watershed areas.

Certain nationally important watershed areas classified as part of the National Integrated Protected Areas System (NIPAS) are managed by Protected Areas Management Boards (PAMB) where LGUs are expected to

play a major role. In cases where two or more LGUs share a watershed, more than one LGU representative sits in the PAMB. Under NIPAS, the preliminary basis for the PAMB in managing an area is the initial protected area plan (IPAP) that divides a watershed area into buffer zones, multiple use, or strict protection zones, and prescribes specific management guidelines for each zone. Determining the cultural, socioeconomic, and biophysical characteristics of an area is necessary for the formulation of the IPAP. This is done through appropriate surveys, resource profiling, and a consultation with watershed occupants.

### Practices That Are Working

For many years, the citizens and local officials of Bayombong, capital of Nueva Vizcaya, took for granted that the small Barobbob watershed which supplies their water for drinking and irrigation was covered by the NIPAS Act. When the DENR and the Provincial Government, acting on the requirements of the NIPAS Act, started to relocate existing settlers in the watershed, the settlers stood their ground and raised the issue of their right to live in the watershed. According to the local DENR, there was no legal basis to have the area covered by the Community-Based Forest Management Program, which would have given the settlers security of tenure.

Convinced that relocating settlers, as a watershed management approach, would not work, the Provincial Government initiated with the DENR, NGOs, and community leaders the conduct of a rapid but thorough watershed characterization. The result was the correct classification of the Barobbob watershed in relation to the NIPAS Act. Through a participatory planning process, it became

clear that what was long assumed as part of a critical watershed supporting a major hydro-electrical power grid is more appropriately considered a regular watershed and need not be classified by any legal proclamation as critical. As a regular watershed, it became available to the Provincial Government to declare as a project site for a Community-Based Land Management agreement between the province, the

community, and the DENR. This arrangement made it possible for upland families to enjoy security of tenure, engage in agricultural production in designated zones, and protect the forest from further degradation and destructive migration. The Provincial Government gained from not having to employ forest guards and building the capability of its staff to provide technical assistance to farmers at the site.



*Using the watershed characterization process, the Province of Nueva Vizcaya established the legal status of their watershed.*





# LGU Action Agenda

## Other Initiatives

The Naga City Government's watershed characterization resulted in planning and implementation of the Strategic Watershed Management Plan for the Naga City River. The process employed the watershed planning approach, focusing on the whole watershed as the planning and management unit, which involved various stakeholders from four eco-zones that straddle the watershed.

The Province of Bukidnon contains the headwaters of a number of big river systems. Proper characterization has enabled the Bukidnon Watershed Protection and Development Council to bring together four member municipalities to formulate their locally adapted municipal watershed management plans. For instance, in the Municipality of Lantapan and the municipalities around Mt. Kitanglad efforts are now directed towards soil and water conservation measures, and agroforestry activities.

The Mananga River watershed in Cebu City and bigger watersheds such as the Kotkot-Lusaran watershed are undergoing characteriza-

tion studies as input into the Strategic Watershed Management Plan.

The ongoing Butuanon River Watershed Management Project in Mandaue City use the urban growth and development zones as critical considerations for planning in light of

expanding economic activities that are placing increasing pressures on land resources. It is a move towards an integrated land-use plan that links social and economic development with environmental protection and enhancement.



*The Province of Bukidnon, because of its terrain, contains the headwaters of several big river systems. Several municipalities in the province have formulated their municipal watershed management plans promoting measures like soil and water conservation.*

## Resources and References

The experience of these local governments which have made various interventions to manage their watershed can help you as you begin your watershed management process:

- Project Management Office, c/o Office of the Mayor, Naga City
- Watershed Management and Flood Control Task Force, c/o Office of the Governor, Malolos, Bulacan
- Provincial Planning and Development Office of Bukidnon, Nueva Vizcaya, and Negros Oriental
- Provincial Land Use Committees (PLUC) of local governments mentioned in this issue

For technical assistance on delineation, getting the necessary maps,

and other technical issues, you may call or write the following:

- [Department of Agriculture, Bureau of Soils and Water Management](#), Elliptical Road, Quezon City, Tel. (02) 921-9321, 921-7825
- [DENR](#) at Visayas Avenue, Quezon City particularly:
- [Ecosystems Research and Development Bureau \(ERDB\)](#), Tel. (02) 926-2195, 929-6629 local 2095
- [Forest Management Bureau \(FMB\)](#), Tel. (02) 920-0374, 929-6626 local 2126
- Local DENR offices: Provincial and/or Community Environment and Natural Resources Office (PENRO/CENRO)
- [National Mapping and Resources Information Authority \(NAMRIA\)](#), Fort

Bonifacio, Makati City, Tel. (02) 810-4835 to 37

- Local colleges and universities with colleges of agriculture, engineering, or forestry

Other nongovernmental organizations (NGOs) can provide technical assistance:

- Institute of Environmental Science for Social Change (ESSC), Ateneo de Manila University, Katipunan Rd., Quezon City, tel. (02) 426-5958 or 426-6001 or Damascus St., Impalambong, Malaybalay, Bukidnon 8700
- [Water Resources Center](#), University of San Carlos, Talamban, Cebu City